**Egyptian Fractions**

The ancient Egyptians didn’t write fractions with a numerator greater than one. Instead, they wrote all fractions as sums of **different** unit fractions. For example, they would not write 2/3 as 1/3 + 1/3, but instead as 1/a + 1/b, where a and b are different.

Part 1 of your task:

Write the following as the Egyptians might:

1. 2/3
2. 4/5
3. 5/9

Part 2 of your task

* Come up with what you believe to be the MOST efficient way to turn a fraction into an Egyptian fraction.
  + How are you defining “efficient”?
  + Is there a set of steps that will work every time?
  + Will what you describe work for all fractions? How do you know if you’ve checked enough of them?
* Prepare a whiteboard to share you strategy. Your whiteboard should include:
  + Your definition (or characteristics) of efficient
  + The strategy you are proposing
  + An example of the strategy with one easy-ish fraction and one gross-ish fraction

Part 3 (if you have time)

* In the 1940s, the mathematicians Paul Erdos and Ernst G. Straus conjectured that every fraction with numerator = 4 can be written as an Egyptian fraction sum with three terms. If you have found an example that appears to need more than three, can you find an alternative sum? Can you find a reason why it must work, or a counter-example? Does this hold for all fractions with a numerator of 3?